

Message Text

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PAGE 01 PARIS 08986 01 OF 06 101028Z

16

ACTION OES-04

INFO OCT-01 EUR-12 ISO-00 ERDA-05 NRC-05 AID-05 CEQ-01

CIAE-00 OFA-01 COME-00 DODE-00 EB-07 EPA-01 INR-07

IO-10 L-02 NSF-01 NSC-05 NSAE-00 PM-03 SS-15 SP-02

ACDA-05 FEA-01 DOTE-00 HEW-02 /095 W

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LIMITED OFFICIAL USE SECTION 01 OF 06 PARIS 08986

FOR OES DR. RAY FROM EMBASSY SCICOUN

E.O. 11652 : N/A

TAGS: TGEN, FR

SUBJECT: U.S.-FRENCH RELATIONS IN OCEANS, ENVIRONMENT,
SCIENCE AND TECHNOLOGY

REF: A. STATE 31948 B. JUNE 30, 1974 STATUS REPORT

C. STATE 20212 D. PARIS 141 E. PARIS 08381

F. PARIS A-84, FEBRUARY 26, 1974 G. PARIS A-168,

MARCH 15, 1974 H. PARIS 07082 I. PARIS 8675

J. A-71, FEBRUARY 1, 1974

SUMMARY: THIS REPORT IS IN RESPONSE TO YOUR REQUEST IN
REFTEL A. IT GIVES BRIEF HIGHLIGHTS OF SEVERAL ASPECTS
OF U.S. - FRENCH RELATIONS IN CIVILIAN GOVERNMENT - TO -
GOVERNMENT SCIENCE AND TECHNOLOGY, LEAVING DETAILS TO
REFERENCED TELEGRAMS AND REPORTS. THESE RELATIONS WITH
FRANCE ARE STRONG AND HAVE WITHSTOOD SOME STORMY
POLITICAL TIMES. A SYSTEMATIC MATCHING OF U.S. INTER-
ESTS WITH FRENCH CAPABILITIES COULD INCREASE THE BENEFIT
TO THE U.S. OF THESE RELATIONS. U.S. FOREIGN POLICY
OBJECTIVES COULD BE BETTER SERVED THROUGH CLEAR U.S.

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PAGE 02 PARIS 08986 01 OF 06 101028Z

POLICIES ON TECHNOLOGY TRANSFER AND BY MORE ACTIVE IN-

FORMATION PROGRAMS ON CURRENT U.S. ACTIVITIES AND POLICIES IN SCIENCE AND TECHNOLOGY. COOPERATION IN NUCLEAR ENERGY IS CURRENTLY OF PRIMARY IMPORTANCE. IN CONSIDERING OUR INTERNATIONAL RELATIONS IN THE OES FIELDS WE MAY FORM A FOREIGN POLICY FOR SCIENCE BUT SHOULD NOT DEVELOP SCIENCE FOR FOREIGN POLICY. END SUMMARY.

2. A. DESCRIPTION OF SIGNIFICANT RELATIONS. U.S. - FRENCH BILATERAL RELATIONS IN OCEANS, ENVIRONMENT, SCIENCE AND TECHNOLOGY INVOLVE ALMOST EVERY SUBJECT WITHIN THESE FIELDS AND ALL SECTORS OF SOCIETY -- GOVERNMENT (CIVILIAN AND MILITARY), INDUSTRIES AND UNIVERSITIES. IN 1969, THE CREATION OF THE U.S. - FRENCH PROGRAM ON SCIENTIFIC COOPERATION FORMALIZED THESE RELATIONS IN THE CIVILIAN GOVERNMENT - TO - GOVERNMENT SECTOR. TODAY THIS PROGRAM INCLUDES OVER 100 PROJECTS INVOLVING MORE THAN 20 AGENCIES IN EACH GOVERNMENT. THE TWO GOVERNMENTS, IN ADDITION, COOPERATE IN THESE FIELDS WITHIN THE PROGRAMS OF VARIOUS INTER-GOVERNMENTAL ORGANIZATIONS' E.G.: NATO AND ITS CCMS, OECD, AND THE UN ORGANIZATIONS.

3. THE U.S. - FRENCH PROGRAM ON SCIENTIFIC COOPERATION OPERATES WITH MINIMUM BUREAUCRATIC OVERHEAD AND NO DIRECT FUNDING. ONE OR TWO COORDINATORS ON EACH SIDE (I.E.: U.S. - DR. ASTIN, FRANCE - DGRST H. CURIEN AND MFA LALOY) ASSIST COMMUNICATIONS WHERE NECESSARY, HELP ESTABLISH NEW PROJECTS, OVERSEE THE PREPARATION OF SEMI-ANNUAL PROGRAM REVIEWS (I.E. JUNE BY FRANCE AND DECEMBER BY U.S.) AND HOLD MEETINGS APPROXIMATELY ANNUALLY. SUPPORT AND ASSISTANCE ON DAY-TO-DAY MATTERS IS PROVIDED BY THE SCIENCE OFFICE OF THE U.S. EMBASSY, PARIS WITH WASHINGTON SUPPORT THROUGH THE DEPARTMENT OF STATE/OES. FOR THE FRENCH, THE DGRST STAFF IN PARIS AND THE SCIENCE OFFICE IN THE FRENCH EMBASSY IN WASHINGTON PROVIDE SIMILAR SERVICES.

4. A PURPOSE OF THE SEMI-ANNUAL REPORTS IS TO IDENTIFY ALL THE SIGNIFICANT CIVILIAN GOVERNMENT - TO - GOVERNMENT COOPERATIVE ACTIVITIES IN THE VARIOUS FIELDS OF LIMITED OFFICIAL USE

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PAGE 03 PARIS 08986 01 OF 06 101028Z

SCIENCE, TECHNOLOGY, OCEANS AND ENVIRONMENT; THE JULY 1974 REPORT (REF B) WAS PREPARED BY FRANCE, THE U.S. IS COMPLETING THE REPORT FOR DECEMBER 1974. THE COORDINATORS LAST MET IN WASHINGTON IN JANUARY 1975 (SUMMARY IN REF C).

5. SOME BRIEF HIGHLIGHTS OF CURRENT ACTIVITIES OFFER A PARTIAL VIEW OF THIS BILATERAL PROGRAM; THE DEPTH AND

BREADTH OF THE PROGRAM IS BEST PRESENTED IN THE LATEST SEMI-ANNUAL REPORT.

NUCLEAR ENERGY - VISITS AND INFORMAL DISCUSSIONS ARE FOCUSING ON POSSIBLE BILATERAL COOPERATION IN BREEDER REACTOR TECHNOLOGY, ENRICHMENT SERVICES AND TECHNOLOGY, AND SAFETY RESEARCH AND REGULATION. (SEE REF D AND E.)

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PAGE 01 PARIS 08986 02 OF 06 101053Z

12

ACTION OES-04

INFO OCT-01 EUR-12 ISO-00 ERDA-05 NRC-05 AID-05 CEQ-01

CIAE-00 OFA-01 COME-00 DODE-00 EB-07 EPA-01 INR-07

IO-10 L-02 NSF-01 NSC-05 NSAE-00 PM-03 SS-15 SP-02

ACDA-05 FEA-01 DOTE-00 HEW-02 /095 W

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R 100954Z APR 75

FM AMEMBASSY PARIS

TO SECSTATE WASHDC 8334

LIMITED OFFICIAL USE SECTION 02 OF 06 PARIS 08986

SPACE - COOPERATION HAS BEEN LIMITED DUE TO U.S. POLICY PROHIBITING THE TRANSFER OF SPACE TECHNOLOGY AND ENCOURAGING THE SALE OF HARDWARE. HOWEVER, U.S. SPACE LAUNCHERS HAVE CARRIED A NUMBER OF FRENCH EXPERIMENTS AND THE OUTLOOK IS FAVORABLE FOR THIS COOPERATION TO CONTINUE THROUGH THE SPACE SHUTTLE PROGRAM.

OCEANOGRAPHY - PROJECT FAMOUS HAS BEEN A REMARKABLE SUCCESS AND BOTH SIDES ARE LOOKING FOR A FOLLOW-ON PROJECT WITH SIMILAR VISIBILITY.

MEDICINE - THE FRENCH HAVE PROPOSED EXPANDED COOPERATION IN CANCER RESEARCH; THROUGH VISITS OF EXPERTS DURING 1975, A PROPOSED PROGRAM IS EXPECTED TO EMERGE.

ASTRONOMY - FRANCE, CANADA AND THE U.S. ARE COOPERATING IN THE CONSTRUCTION AND USE OF A NEW \$4 MILLION TELESCOPE AT HAWAII.

EXCHANGES - CNRS AND NSF HAVE ESTABLISHED A PROGRAM OF EXCHANGING RESEARCHERS; APPROXIMATELY 15 SCIENTISTS FROM THE U.S. TO FRANCE AND AN EQUAL NUMBER FROM FRANCE TO THE U.S. THIS YEAR.

ENERGY - FRANCE IS HALF-HEARTEDLY PARTICIPATING LIMITED OFFICIAL USE

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PAGE 02 PARIS 08986 02 OF 06 101053Z

IN A U.S. EFFORT TO COLLATE BRIEF DESCRIPTIONS OF EACH ONGOING ENERGY R & D PROJECT IN SIX COUNTRIES (SOME FRENCH AGENCIES ARE NOT ANXIOUS TO REVEAL CURRENT RESEARCH STRATEGIES, OTHERS HAVE AGREED TO COOPERATE).

- CNRS AND NSF (ERDA) ARE NEGOTIATING A MEMORANDUM OF UNDERSTANDING COVERING USE OF THE SOLAR TEST FACILITY AT ODEILLO; THE MAJOR HANG-UP IS THE PATENT PROVISION.

- DUE TO THE POLITICAL STRESS OVER FRANCE NOT JOINING THE IEA, THERE IS A NOTICEABLE LULL IN PROPOSALS FOR NEW PROJECTS IN ENERGY. HOWEVER, FRANCE IS INTERESTED IN SPECIFIC ENERGY-RELATED COOPERATIVE PROJECTS, SUCH AS GEOTHERMAL ENERGY.

6. IN THE CCMS RUBRIC, FRANCE IS ONE OF THE MORE ACTIVE COUNTRIES: CO-PILOT FOR THE PROJECTS IN COASTAL WATER POLLUTION, MODERN TREATMENT OF USED WATER, AND SOLAR ENERGY; PARTICIPANT IN MODERN HEALTH TECHNIQUES, GEOTHERMAL ENERGY, AND RATIONAL USES OF ENERGY. FRANCE IS RESPONSIBLE FOR THE PORTION OF THE URBAN TRANSPORTATION PROJECT DEALING WITH FREIGHT MOVEMENT IN URBAN AREAS AND, FOR THE ROAD SAFETY PROJECT, IS FOCUSING ON THE FOLLOW-ON EFFORT TO THE IDENTIFICATION AND ELIMINATION OF ROAD HAZARDS.

7. B. STRENGTHS AND WEAKNESSES OF THESE RELATIONS. FROM THE U.S. POINT OF VIEW, RELATIONS WITH FRANCE IN SCIENCE, TECHNOLOGY, OCEANS AND ENVIRONMENT ARE STRONG, HEALTHY AND PRODUCTIVE. THESE RELATIONS HAVE BEEN PRODUCTIVE FOR OVER TWO CENTURIES AND HAVE BROUGHT A GREAT DEAL TO THE U.S. WAY OF LIFE. TODAY, THEY CONSTITUTE ONE OF THE MOST ACTIVE AND VERSATILE BILATERAL PROGRAMS IN THESE FIELDS. THESE QUALITIES ARE SUPPORTED BY STRONG SCIENCE AND TECHNOLOGY INFRASTRUCTURES IN BOTH COUNTRIES, AN ESTABLISHED PATTERN OF COOPERATION AND A GENUINE RESPECT FOR THE QUALITY OF WORK IN THE OTHER COUNTRY. THE STRENGTH OF THESE RELATIONS STEMS FROM THE BELIEF IN BOTH COUNTRIES THAT COOPERATION IN THESE FIELDS IS MUTUALLY BENEFICIAL, AND IS MAINTAINED BY THE SCIENTIST-TO-SCIENTIST APPROACH TO PROJECT IDENTIFICATION

DEFINITION AND OPERATION. WITHIN THE U.S. - FRENCH
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PAGE 03 PARIS 08986 02 OF 06 101053Z

SCIENCE COOPERATION PROGRAM, PROJECTS ARE SUPPORTED ON
THEIR OWN TECHNICAL MERIT AND COMPETE FOR LIMITED FUNDS
WITH OTHER NATIONAL PROJECTS IN THE SAME FIELD. PRODUC-
TIVE COOPERATION HAS CONTINUED ALMOST WITHOUT REGARD TO
THE POLITICAL RELATIONS BETWEEN THE TWO GOVERNMENTS.

8. ON THE WEAKNESS SIDE, ONE MUST INCLUDE THE DIFFERENCE
IN LANGUAGES AND, IN SOME AREAS, THE DIFFERENCE IN UNITS
OF MEASURE AS THESE FACTORS IMPEDE THE FULL AND RAPID
EXCHANGE OF IDEAS AND INFORMATION. SUFFICIENT STAFF
DOES NOT EXIST TO SYSTEMATICALLY MATCH U.S. INTERESTS
WITH FRENCH CAPABILITIES. A SUBSEQUENT LIMITATION
TO THE STRENGTHENING OF THESE RELATIONS THEN WOULD BE
THE LACK OF WELL DEFINED POLICIES FOR INTERNATIONAL
COOPERATION IN TECHNICAL SUBJECTS, IN TURN BASED ON
EXPLICIT NATIONAL POLICIES FOR RESEARCH AND DEVELOPMENT.

9. FRANCE TRIES TO AVOID AN EXCESS IMBALANCE IN
ITS SCIENCE AND TECHNOLOGY RELATIONS WITH THE U.S. WITH
THOSE WITH THE USSR AND, IN ANOTHER DIMENSION, GIVE
PRIORITY TO ITS RELATIONS IN THESE FIELDS WITH ITS
COMMON MARKET PARTNERS. IN ADDITION, FRANCE MAINTAINS

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PAGE 01 PARIS 08986 03 OF 06 101044Z

11

ACTION OES-04

INFO OCT-01 EUR-12 ISO-00 ERDA-05 FEA-01 AID-05 CEQ-01

CIAE-00 OFA-01 COME-00 DODE-00 EB-07 EPA-01 INR-07

IO-10 L-02 NSF-01 NSC-05 NSAE-00 PM-03 SS-15 SP-02

ACDA-05 NRC-05 DOTE-00 HEW-02 /095 W

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FM AMEMBASSY PARIS
TO SECSTATE WASHDC 8335

LIMITED OFFICIAL USE SECTION 03 OF 06 PARIS 08986

AN ACTIVE PROGRAM OF TECHNICAL COOPERATION WITH MANY OF THE FRANCOPHONE COUNTRIES. THESE DIVERSIONS LIMIT THE FUNDS AND MANPOWER AVAILABLE FOR COOPERATION WITH THE U.S., BUT AUGUR FOR AN ENRICHED FRENCH SCIENCE BODY AND, TO THAT EXTENT, COULD BE BENEFICIAL TO THE U.S.

10. IN ADDITION TO THE SECURITY SENSITIVE TECHNOLOGIES, BOTH GOVERNMENTS WATCH THE EXCHANGE OF TECHNOLOGIES FOR POSSIBLE "GIVE-AWAYS" OF COMMERCIALY EXPLOITABLE ITEMS. THE LACK OF AN ESTABLISHED PROCEDURE FOR DEALING WITH POTENTIALLY PATENTABLE IDEAS SLOWS DOWN THE INITIATION OF SOME PROJECTS AND PRECLUDES OTHERS FROM SERIOUS BI-LATERAL DISCUSSIONS.

11. C. FRENCH SCIENCE AND TECHNOLOGY, ITS STRENGTHS AND WEAKNESSES (ESPECIALLY RELATED TO INDUSTRY). IN STATISTICAL TERMS, FRENCH SCIENCE AND TECHNOLOGY OFFERS THE FOLLOWING COMPARISONS (SEE REF F):

A. IN 1974 R & D FEDERAL EXPENDITURES
FOR FRANCE.....\$3.3 BILLION OR
\$63/PERSON

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PAGE 02 PARIS 08986 03 OF 06 101044Z

FOR U.S.....\$17.4 BILLION OR
\$78/PERSON

B. FOR TOTAL R & D EXPENDITURES (1971
DATA):

	PERCENT GNP	PERCENT PUBLIC FUNDS	PERCENT PERFORM-ED BY INDUSTRY
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FRANCE	1.8 PERCENT	61 PERCENT	56 PERCENT
U.S.	2.6 PERCENT	59 PERCENT	67 PERCENT
FRG	2.1 PERCENT	45 PERCENT	68 PERCENT

12. IN TERMS OF GENERAL OBSERVATIONS, THE FRENCH R & D EFFORT IS ABOUT 15 PERCENT OF THAT OF THE U.S. AND THE RESULTS THAT FEED INTO FRENCH INDUSTRY SEE A RELATIVELY SMALLER MARKET. IN ADDITION, THE FRENCH PUBLIC IS MUCH MORE CONSERVATIVE -- LESS APT TO ACCEPT AND ACCOMODATE TO CHANGE --THAN IS THE U.S. PUBLIC. AN EXAMPLE OF

THIS LATTER POINT, ALBEIT ABNORMAL, IS THE ACCEPTANCE FINALLY IN 1968 OF PASTURIZED MILK, IN CONTRAST, THE FRENCH HAVE A HIGH REGARD FOR SCIENCE AND TECHNOLOGY; THEIR GRANDES ECOLES PROVIDE A TECHNICAL EDUCATION, THEY PRODUCE THEIR SHARE OF THE TOP SCIENTISTS OF THE WORLD AND THEIR PUBLIC MEDIA BOASTS OF A FINE CADRE OF EXCELLENT SCIENCE WRITERS. DE GAULLE'S EFFORTS TO MAKE FRANCE "INDEPENDENT". WAS BASED IN PART ON DEVELOPING COMPETENCE IN THE LATEST HIGH TECHNOLOGIES TO SUPPORT MODERN MILITARY STRENGTH AND INDUSTRIAL CAPABILITY, E.G. NUCLEAR POWER, SATELLITE LAUNCHERS, COMPUTERS, AND AIRCRAFT. YET FRANCE HAS TROUBLE IN ACCOMMODATING ITS POLITICAL VIEW OF ITSELF AS A NATION WITH THE REALITIES OF THE INTERNATIONAL R & D ENVIRONMENT, PARTICULARLY THE GREAT SIZE, DEPTH AND COMMERCIAL CAPABILITIES OF THE U.S. (SEE REF G).

13. THE GOF APPEARS TO BE NORMALIZING ITS R & D OUTLOOK BY REDUCING THE EMPHASIS ON THE "INDEPENDENCE" OF ITS INDUSTRY IN CERTAIN HIGH TECHNOLOGIES, FAVORING A MORE PRAGMATIC APPROACH TO RESULTS-ORIENTED RESEARCH, PARTICULARLY IN THE AGRICULTURE AREA AND THOSE AREAS THAT WILL HELP FRANCE REDUCE HER DEPENDENCE ON FOREIGN SOURCES OF ENERGY AND RAW MATERIALS. COMMIT-LIMITED OFFICIAL USE

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PAGE 03 PARIS 08986 03 OF 06 101044Z

MENTS IN EUROPEAN SPACE ACTIVITIES ARE BEING MET, BUT NOT WITHOUT NOTICEABLE BUDGETARY SQUABBLES; CONTINUED SUBSIDY OF THE COMPUTER INDUSTRY IS BEING CAREFULLY REVIEWED (REF H); THE CONCORDE SUPERSONIC CIVILIAN AIRCRAFT IS IN A FIGHT FOR SURVIVAL AGAINST ECONOMIC AND ENVIRONMENTAL FACTORS; AND THE NUCLEAR INDUSTRY IS BEING EXPANDED AS RAPIDLY AS POSSIBLE TO HELP EXPORT EARNINGS AND REDUCE IMPORTED OIL (ONCE IT GETS PAST SOME HEATED DOMESTIC DEBATE - REF I).

14. THE FOLLOWING CHARACTERISTICS OF THE FRENCH SCIENCE AND TECHNOLOGY PROVIDE A PERSPECTIVE ON ITS STRENGTHS AND WEAKNESSES:

A. THE CLASSIC FRENCH EDUCATIONAL SYSTEM PRODUCES AN EXCELLENT CADRE OF MANAGERS, MOST WITH TECHNICAL TRAINING, WHO FORM A CLOSE-KNIT GROUP OF THE CAREER GOVERNMENT OFFICIALS AND INDUSTRIAL MANAGERS. OFTEN THE SUCCESSFUL GOVERNMENT OFFICIAL CAPS HIS CAREER BY SERVING SEVERAL YEARS IN A SENIOR POSITION IN ONE OF THE LARGE FRENCH INDUSTRIES. THESE

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PAGE 01 PARIS 08986 04 OF 06 101046Z

10

ACTION OES-04

INFO OCT-01 EUR-12 ISO-00 ERDA-05 FEA-01 NRC-05 AID-05

CEQ-01 CIAE-00 OFA-01 COME-00 DODE-00 EB-07 EPA-01

INR-07 IO-10 L-02 NSF-01 NSC-05 NSAE-00 PM-03 SS-15

SP-02 ACDA-05 DOTE-00 HEW-02 /095 W

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R 101018Z APR 75

FM AMEMBASSY PARIS

TO SECSTATE WASHDC 8336

LIMITED OFFICIAL USE SECTION 04 OF 06 PARIS 08986

PRACTICES PROVIDE EXCELLENT COMMUNICATIONS AMONG GOVERNMENT AGENCIES AND BETWEEN GOVERNMENT AND INDUSTRY. HOWEVER, THESE CUSTOMS TEND TO PRODUCE AN INGROWN PERSPECTIVE WITH LITTLE OPPORTUNITY FOR COMPETING OUTSIDE VIEWS.

B. IN SPITE OF THIS COMMUNICATION CAPABILITY, THERE EXISTS A SHARP SEPARATION BETWEEN R & D WORK DONE IN THE GOVERNMENT, IN INDUSTRY, AND IN THE UNIVERSITIES. THERE IS LITTLE TIMELY PUBLICATION OF ON-GOING RESEARCH WORK AND RESEARCH RESULTS AS SCIENTISTS ARE CAUTIOUS ABOUT GIVING OTHERS THE OPPORTUNITY TO TAKE ADVANTAGE (AND THEN CREDIT) FOR THEIR EFFORTS. IT IS NOT AN ACCEPTED PRACTICE FOR RESEARCHERS TO CHANGE JOBS BETWEEN INDUSTRY, GOVERNMENT AND UNIVERSITIES OR TO CONSULT ACROSS THESE DIVISIONS.

C. A CURRENT EFFORT OF THE GOVERNMENT IS TO ENCOURAGE INDUSTRY TO UNDERTAKE MORE RESEARCH AND DEVELOPMENT TO REDUCE THE GOVERNMENT'S FUNDS REQUIRED TO MAINTAIN EMPLOYMENT IN THAT SECTOR AND TO HELP FOCUS R & D EFFORTS MORE TOWARD COMMERCIALY VIABLE ENDS.

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PAGE 02 PARIS 08986 04 OF 06 101046Z

DGRST'S CURIEN HAS ASKED FOR INFORMATION ON HOW THE MORE SUCCESSFUL U.S. PROCESS WORKS.

D. IN ADDITION TO ITS EMPHASIS ON RESULTS-ORIENTED RESEARCH, THE FRENCH ADMINISTRATION IS ALSO RESTUDYING HOW THE ACADEMY OF SCIENCES (REPRESENTING THE SCIENTIFIC COMMUNITY) CAN BE REVITALIZED TO CONTRIBUTE ITS ADVICE IN A TIMELY AND USEFUL WAY TO THE TOP-LEVEL DECISIONS OF GOVERNMENT. THE SIMILAR STUDY IN THE U.S. (A SCIENCE ADVISER TO THE PRESIDENT) IS BEING CAREFULLY WATCHED IN HOPES THAT THE U.S. APPROACH WILL HELP IN FORMULATING THE FRENCH DESIGN.

15. D. FRENCH ADVANCED TECHNOLOGY OF POTENTIAL INTEREST TO THE U.S. THE EXTENSIVE COOPERATION EXISTING BETWEEN FRANCE AND THE U.S. REFLECTS THE EFFORTS TO DATE TO MATCH U.S. INTERESTS WITH FRENCH CAPABILITIES. WITH NEW FUNDS EARMARKED FOR BILATERAL COOPERATION,

A MORE ACTIVE EXCHANGE OF IDEAS AND EXPERIENCES COULD BE DEVELOPED.

16. A FEW ITEMS FROM THE MORE OBVIOUS FRENCH "POCKETS OF EXCELLENCES" SHOULD SERVE AS EXAMPLES OF TECHNOLOGIES OF POTENTIAL INTEREST TO THE U.S.:

ENERGY (A) THE FRENCH DEMONSTRATION FAST BREEDER POWER REACTOR (PHENIX) HAS BEEN AN OPERATIONAL SUCCESS AND THIS EXPERIENCE COULD PROBABLY BE A SIGNIFICANT HELP TO THE U.S. BREEDER PROGRAM (REF J).

(B) THE SOLAR FACILITY AT ODEILLO, UNTIL THE U.S. BUILDS A LARGER UNIT, IS UNIQUE AND COULD ASSIST THE U.S. IN TESTING VARIOUS SOLAR ENERGY CONVERSION TECHNIQUES.

(C) THE FRENCH FUSION RESEARCH WORK, USING TOKO-MAK AND LASERS, IS WELL ADVANCED AND INCREASED COOPERATION WOULD BE OF ADVANTAGE TO THE U.S.

(D) INSTITUT FRANCAIS DU PETROL, IN COOPERATION WITH QUEEN'S COLLEGE, ENGLAND, HAS AN INTERESTING COMPUTER MODEL OF THE INTERNATIONAL FLOW OF PETROLEUM

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PAGE 03 PARIS 08986 04 OF 06 101046Z

PRODUCTS. ALTHOUGH IFP IS ATTEMPTING TO COMMERCIALIZE THIS MODEL, IT COULD OFFER A DIFFERENT PERSPECTIVE AND EXPERIENCE TO U.S. MODELS OF A SIMILAR NATURE.

(E) IN ENERGY CONSERVATION EXPERIENCE: FRANCE HAS ELECTRICAL LOAD LEVELING PROCEDURES FOR INDUSTRY AND RESIDENTIAL CONSUMERS WHICH HELP DIRECT TIME-FLEXIBLE USE TO OFF-PEAK HOURS; FRENCH CAPABILITIES IN HIGH VOLTAGE POWER TRANSMISSION HAVE BEEN WELL KNOWN FOR SOME TIME.

TECHNOLOGY (F) TUNNELING TECHNOLOGY, PARTICULARLY APPLIED TO COAL MINING, IS A WELL ESTABLISHED FRENCH AREA OF EXCELLENCE.

(G) SOME OF THE INDUSTRIAL PRACTICES USED IN FRANCE, SUCH AS IN THE CEMENT INDUSTRY, CONSUME LESS SPECIFIC ENERGY THAN THOSE IN USE IN THE U.S.; LACK OF TAX INCENTIVES MAY LIMIT THE ADOPTION OF THOSE MORE ATTRACTIVE COMMERCIAL PROCESSES IN THE U.S.

(H) DEEP SEA CAPABILITIES INCLUDING DRILLING AND DIVING ARE FRENCH AREAS OF EXCELLENCE. THIS EXPERIENCE IS DUE IN PART TO LESS STRICT CONTROL (THAN IN THE U.S.) OVER HUMAN SAFETY PRACTICES IN DIVING.

(I) FIRE PROPERTIES OF MATERIALS AND ASSOCIATED

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PAGE 01 PARIS 08986 05 OF 06 101051Z

10

ACTION OES-04

INFO OCT-01 EUR-12 ISO-00 ERDA-05 FEA-01 AID-05 CEQ-01

CIAE-00 OFA-01 COME-00 DODE-00 EB-07 EPA-01 INR-07

IO-10 L-02 NSF-01 NSC-05 NSAE-00 PM-03 SS-15 SP-02

NRC-05 ACDA-05 DOTE-00 HEW-02 /095 W

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R 101018Z APR 75

FM AMEMBASSY PARIS

TO SECSTATE WASHDC 8337

LIMITED OFFICIAL USE SECTION 05 OF 06 PARIS 08986

BUILDING REGULATIONS ARE WELL ADVANCED IN FRANCE; HOWEVER U.S. REGULATION SYSTEMS MAY BE LIMITING FACTORS IN TRANSFERRING EXPERIENCE IN THIS FIELD.

(J) FRENCH HIGH SPEED RAIL TECHNOLOGY IS ONE OF THE BEST IN THE WORLD; THE AEROTRAIN REACHED THE PILOT DEMONSTRATION PHASE BUT HAS BEEN UNABLE TO MAKE THE COMMERCIAL HURDLE. PERHAPS THE TECHNOLOGY DEMONSTRATED COULD GENERALLY ASSIST U.S. EFFORTS IN THIS FIELD.

(K) FRENCH CAPABILITIES IN LASERS MAY OFFER ATTRACTIVE COOPERATIVE POSSIBILITIES.

ENVIRONMENT (L) FRANCE HAS SOME EXPERIENCE IN NEW WASTE WATER TREATMENT PROCESSES (AND ALSO SOME VERY TROUBLESOME BOUNDARY WATER POLLUTION ISSUES) WHICH MAY BE WORTHY OF INCREASED COOPERATION.

(M) COASTAL ENVIRONMENTAL EFFECTS OF DREDGING HAVE BEEN STUDIED AND THIS EXPERIENCE MAY OFFER SOME BENEFIT TO U.S. POLICIES AND PRACTICES.

17. THE ABOVE ARE AREAS OF FRENCH EXCELLENCE IN SCIENCE AND TECHNOLOGY OF POSSIBLE INTEREST TO THE U.S. THERE ARE MANY ADDITIONAL AREAS FOR POSSIBLE COLLABORATION -- WHERE COMPATIBLE RESEARCH PROGRAMS COULD BE COORDINATED LIMITED OFFICIAL USE

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PAGE 02 PARIS 08986 05 OF 06 101051Z

TO GIVE EACH GOVERNMENT AN IMPROVED RETURN ON ITS INVESTMENT, E.G., MEDICAL RESEARCH, ENVIRONMENTAL AND ECOLOGY STUDIES, FOOD AND DRUG RESEARCH AND SEVERAL SCIENTIFIC FIELDS. USEFUL COLLABORATION OF THIS NATURE REQUIRES CONTINUOUS CONTACT BETWEEN LABORATORY RESEARCH DIRECTORS AND THE WILLINGNESS OF BOTH SIDES TO MAKE RELATIVELY LONG TERM COMMITMENTS OF FUNDS AND MANPOWER TO VERY SPECIFIC WORK PROGRAMS. TECHNOLOGIES WITH POTENTIAL COMMERCIAL APPLICATION WOULD NOT BE AS CONDUCIVE TO COLLABORATION.

18. E. TRENDS IN FRENCH OES ACTIVITIES AND POLICIES. THE MAJOR TREND IN FRENCH POLICY FOR SCIENCE AND TECHNOLOGY IS THAT OF RETREAT FROM DE GAULLE'S STRESS ON THE PRESTIGIOUS TECHNOLOGY PROJECTS TOWARD THE MORE PRACTICAL PROGRAMS WHICH OFFER SOME REASONABLE AND MORE CERTAIN ECONOMIC RETURN, PARTICULARLY IN TERMS OF EXPORT SALES AND, AS RECENTLY EXPRESSED BY THE FRENCH PRESIDENT, IMPROVED AGRICULTURAL PRODUCTIVITY AND REDUCTION OF NATIONAL DEPENDENCE ON FOREIGN SOURCES OF NATURAL RESOURCES, PARTICULARLY OIL.

19. ENERGY ACTIVITIES ARE AT THE TOP OF THE FRENCH ACTIVITY LIST. DEVELOPMENT OF ADVANCED NUCLEAR REACTORS AND URANIUM ENRICHMENT TECHNOLOGY HAS THE HIGHEST PRIORITY. A NEW SOLAR ENERGY CENTER WILL BE CREATED TO CENTRALIZE GOVERNMENTAL EFFORTS IN THIS FIELD. A NEW FOCAL POINT FOR ELECTRIC CARS HAS BEEN IDENTIFIED TO

HELP TAKE FULL ADVANTAGE OF THIS OPTIMUM ARRANGEMENT
FOR ENERGY CONSERVATION OBJECTIVES.

20. IN THE AREA OF GOVERNMENT SCIENCE POLICY, A
REVIEW IS UNDERWAY TO INCREASE THE USEFULNESS OF THE
ACADEMY OF SCIENCES TO GOVERNMENT DECISIONS IN SCIENCE
AND TECHNOLOGY. THE NATIONAL BUDGET SQUEEZE HAS
RAISED THE ISSUE OF DEVELOPING INCENTIVES FOR INDUSTRY
TO SUPPORT MORE RESEARCH AND DEVELOPMENT WORK TO HELP
EMPLOYMENT OF SCIENTISTS AND ENGINEERS AND TO BRING
A MORE RESULTS-ORIENTED TONE TO RESEARCH AND DEVELOP-
MENT ENDEAVORS.

21. BEYOND THESE ASPECTS THERE IS LITTLE MAJOR DIFFER-
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PAGE 03 PARIS 08986 05 OF 06 101051Z

ENCE BETWEEN FRENCH AND U.S. TRENDS IN OES ACTIVITIES
AND POLICIES.

22. F. OPPORTUNITIES TO FURTHER U.S. INTERESTS. THE
FOLLOWING BRIEFLY INTRODUCED ITEMS ARE POSSIBLE OPPOR-
TUNITIES TO FURTHER U.S. POLITICAL, ECONOMIC AND / OR
COMMERCIAL INTERESTS. MOST OF THESE EXAMPLES REQUIRE A
GOOD DEAL MORE STUDY BEFORE RECEIVING SERIOUS ACTION
CONSIDERATIONS.

1. AN EARLY U.S. DECISION ON ITS FUTURE COURSE
IN URANIUM ENRICHMENT WOULD HELP RETAIN FOR THE U.S.
A GOOD SHARE OF THAT INTERNATIONAL MARKET AND REDUCE
THE POTENTIAL FOR LATER POLITICAL DISAGREEMENTS, PAR-
TICULARLY WITH FRANCE, SHOULD A LATE DECISION APPEAR
TO UNDERCUT FRENCH FINANCIAL COMMITMENTS TO ENRICHMENT
FACILITIES.

2. TO MANY FRENCH OBSERVERS THE U.S. APPEARS TO
NOT BE FOLLOWING A WELL ESTABLISHED, CONSISTENT POLICY
ON RETAINING CERTAIN TECHNOLOGICAL KNOW-HOW AND SELLING
RESPECTIVE HARDWARE. WE MAY ENCOUNTER A FEW LESS
DIFFICULTIES (E.G. LESS REQUESTS THAT GET
TURNED DOWN) IF WE FOLLOW A CONSISTENT POLICY THAT COULD

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PAGE 01 PARIS 08986 06 OF 06 101107Z

12

ACTION OES-04

INFO OCT-01 EUR-12 ISO-00 ERDA-05 NRC-05 AID-05 CEQ-01

CIAE-00 OFA-01 COME-00 DODE-00 EB-07 EPA-01 INR-07

IO-10 L-02 NSF-01 NSC-05 NSAE-00 PM-03 SS-15 SP-02

ACDA-05 FEA-01 DOTE-00 HEW-02 /095 W

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BE WELL UNDERSTOOD IN PARIS.

3. INCREASED COORDINATION AND POSSIBLY COLLABORATION INTO HEALTH, ENVIRONMENTAL AND FOOD STANDARDS WOULD BE OF ECONOMIC BENEFIT TO THE U.S. AS THE U.S. AND FRANCE AND OTHER DEVELOPED COUNTRIES HAVE SIMILAR PROBLEMS IN THE GROWING RESPONSIBILITIES OF GOVERNMENTS TO PROTECT THE HEALTH OF THEIR CITIZENS. ROUTINE CONSULTATIONS BETWEEN RESEARCH DIRECTORS OF U.S. AGENCIES SUCH AS FDA, EPA AND NIH AND THEIR FRENCH COUNTERPARTS WOULD BE WELCOMED BY THE FRENCH AND PRODUCTIVE FOR THE U.S.

4. KEEPING OTHER COUNTRIES INFORMED ON VARIOUS U.S. RESEARCH AND DEVELOPMENT EFFORTS COULD PAY DIVIDENDS IN SEVERAL WAYS. IT WILL KEEP THE U.S. IMAGE AS THE WORLD LEADER IN SCIENCE AND TECHNOLOGY ALIVE AND MEANINGFUL TO PEOPLE IN OTHER COUNTRIES, HELP SELL RELATED EQUIPMENT AND SERVICES AND TEND TO BRING THE RESEARCH AND DEVELOPMENT POLICIES AND PROGRAMS OF SOME OTHER COUNTRIES INTO LINE WITH THOSE OF THE U.S. IN CERTAIN SITUATIONS THE U.S. WOULD BENEFIT POLITICALLY IF WE LED WITH OUR SCIENCE AND TECHNOLOGY INFORMATION

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PAGE 02 PARIS 08986 06 OF 06 101107Z

FIRST AND THEN FOLLOWED WITH OUR POLITICAL OBJECTIVE: THE ATOMS FOR PEACE PROGRAM SUCCESSFULLY USED THIS APPROACH AND PAVED THE WAY FOR THE CREATION OF THE IAEA; THE OCEAN DUMPING CONVENTION WOULD HAVE BEEN MORE

SUCCESSFULLY ACCEPTED BY OTHER GOVERNMENTS IF WE PRESENT-
ED THE TECHNICAL FACTS FIRST AND THE DRAFT CONVENTION
LATER; PROBABLY SOME OF OUR OBJECTIVES IN THE LOS WOULD
HAVE BEEN MORE EASILY UNDERSTOOD IF THE U.S. HAD PUT
MORE TECHNICAL INFORMATION OUT FIRST BEFORE ATTENTION
WAS FOCUSED ON A CONVENTION. U.S. SCIENCE AND TECH-
NOLOGY IS WELL RESPECTED AND OFTEN OUR STRONGEST SELLING
POINT TO OTHER GOVERNMENTS.

5. DEVELOPING A MORE SYSTEMATIC APPROACH TO
MATCHING U.S. INTERESTS IN SCIENCE AND TECHNOLOGY WITH
FRENCH CAPABILITIES WOULD STRENGTHEN U.S. CAPABILITIES
IN THESE FIELDS, CREATE CLOSER TIES BETWEEN THE TWO
COUNTRIES AND CONTRIBUTE TO INCREASING U.S. INTERNATIONAL
COMMERCIAL ACTIVITY.

6. A SMALL FIRST STEP WOULD BE TO SYSTEMATICALLY (#)
- THE U.S. SCIENTIFIC
ON U.S. ACTIVITIES IN THE OES FIELDS.

23. G. INFLUENCING FRENCH OES ACTIVITIES AND POLICIES.
THE BEST APPROACH TO HAVING A POSITIVE INFLUENCE ON
FRENCH ACTIONS AND POLICIES IN THE OES FIELDS IS TO
FULLY INFORM THE FRENCH GOVERNMENT AND INTERESTED
SECTORS ON U.S. PROGRAMS, POLICIES AND EXPERIENCES AND,
WHEREVER POSSIBLE, TREAT FRENCH SCIENTISTS AND OFFICIALS
AS EQUALS. AN APPROPRIATE CURRENT EXAMPLE IS THE FRENCH
NUCLEAR DEBATE (REF I); WHERE OUR APPROACH IS TO ANSWER
ANY AND ALL QUESTIONS TO THE FULLEST EXTENT, TO ARRANGE
WHATEVER MEETINGS WITHIN REASON ARE DESIRED AND TO
MAKE NO EFFORT TO ENTER INTO THE NATIONAL DEBATE.

24. H. RECOMMENDATIONS. THE PREVIOUS SECTIONS CONTAIN
THE ESSENCE OF SEVERAL SUGGESTIONS FOR CHANGES IN OUR
OES RELATIONS WHICH WOULD

CONTRIBUTE TO MEETING U.S. FOREIGN POLICY OBJECTIVES.
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PAGE 03 PARIS 08986 06 OF 06 101107Z

25. CARE SHOULD BE GIVEN TO DISTINGUISH BETWEEN OUR
INTERNATIONAL RELATIONS IN THE VARIOUS OES FIELDS AND
OUR NATIONAL POLICIES AND OBJECTIVES IN THESE AREAS.
TECHNOLOGY IS A MAIN SUPPORT OF THE VITALITY OF THE
U.S. TODAY AND OUR FOREIGN POLICY IN PART REFLECTS THE
NATIONAL NEEDS OF OUR TECHNOLOGY FOR FOREIGN RELATIONS.
WE SHOULD NOT ATTEMPT TO BEND OUR NATIONAL TECHNOLOGY
POSTURE TO MEET FOREIGN POLICY OBJECTIVES. WE MAY HAVE
A FOREIGN POLICY FOR SCIENCE, BUT WE SHOULD NOT TRY
TO DEVELOP SCIENCE FOR FOREIGN POLICY.
RUSH

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Message Attributes

Automatic Decaptioning: X
Capture Date: 01 JAN 1994
Channel Indicators: n/a
Current Classification: UNCLASSIFIED
Concepts: NUCLEAR ENERGY, POLICIES, NUCLEAR REACTORS, PROGRAMS (PROJECTS)
Control Number: n/a
Copy: SINGLE
Draft Date: 10 APR 1975
Decaption Date: 01 JAN 1960
Decaption Note:
Disposition Action: RELEASED
Disposition Approved on Date:
Disposition Authority: GolinoFR
Disposition Case Number: n/a
Disposition Comment: 25 YEAR REVIEW
Disposition Date: 28 MAY 2004
Disposition Event:
Disposition History: n/a
Disposition Reason:
Disposition Remarks:
Document Number: 1975PARIS08986
Document Source: CORE
Document Unique ID: 00
Drafter: n/a
Enclosure: n/a
Executive Order: N/A
Errors: N/A
Film Number: D750125-0298
From: PARIS
Handling Restrictions: n/a
Image Path:
ISecure: 1
Legacy Key: link1975/newtext/t19750463/aaaacfoe.tel
Line Count: 765
Locator: TEXT ON-LINE, ON MICROFILM
Office: ACTION OES
Original Classification: LIMITED OFFICIAL USE
Original Handling Restrictions: n/a
Original Previous Classification: n/a
Original Previous Handling Restrictions: n/a
Page Count: 14
Previous Channel Indicators: n/a
Previous Classification: LIMITED OFFICIAL USE
Previous Handling Restrictions: n/a
Reference: 75 STATE 31948, 75 JUNE 30, 75 1974
Review Action: RELEASED, APPROVED
Review Authority: GolinoFR
Review Comment: n/a
Review Content Flags:
Review Date: 09 APR 2003
Review Event:
Review Exemptions: n/a
Review History: RELEASED <09 APR 2003 by ShawDG>; APPROVED <14 APR 2003 by GolinoFR>
Review Markings:

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Declassified/Released
US Department of State
EO Systematic Review
05 JUL 2006

Review Media Identifier:
Review Referrals: n/a
Review Release Date: n/a
Review Release Event: n/a
Review Transfer Date:
Review Withdrawn Fields: n/a
Secure: OPEN
Status: NATIVE
Subject: U.S.-FRENCH RELATIONS IN OCEANS, ENVIRONMENT, SCIENCE AND TECHNOLOGY
TAGS: TGEN, FR, US
To: STATE
Type: TE
Markings: Margaret P. Grafeld Declassified/Released US Department of State EO Systematic Review 05 JUL 2006